



US 20200279616A1

(19) **United States**(12) **Patent Application Publication****Rooney et al.**(10) **Pub. No.: US 2020/0279616 A1**(43) **Pub. Date: Sep. 3, 2020**(54) **METHOD AND SYSTEMS FOR PREDICTION OF HLA CLASS II-SPECIFIC EPITOPES AND CHARACTERIZATION OF CD4+ T CELLS**

filed on May 31, 2019, provisional application No. 62/826,827, filed on Mar. 29, 2019, provisional application No. 62/783,914, filed on Dec. 21, 2018.

(71) Applicant: **Neon Therapeutics, Inc.**, Cambridge, MA (US)**Publication Classification**(72) Inventors: **Michael Steven Rooney**, Boston, MA (US); **Jennifer Grace Abelin**, Boston, MA (US); **Dominik Barthelme**, Belmont, MA (US); **Robert Kamen**, Sudbury, MA (US)(51) **Int. Cl.****G16B 30/00** (2006.01)**G16B 5/00** (2006.01)**G16B 40/00** (2006.01)**C07K 16/28** (2006.01)**A61K 39/39** (2006.01)(52) **U.S. Cl.**CPC ..... **G16B 30/00** (2019.02); **G16B 5/00** (2019.02); **A61K 39/39** (2013.01); **C07K 16/2833** (2013.01); **G16B 40/00** (2019.02)(21) Appl. No.: **16/824,331**(22) Filed: **Mar. 19, 2020****Related U.S. Application Data**

(63) Continuation of application No. PCT/US2019/068084, filed on Dec. 20, 2019.

(60) Provisional application No. 62/891,101, filed on Aug. 23, 2019, provisional application No. 62/855,379,

(57)

**ABSTRACT**

The present disclosure provides method for preparing a personalized cancer vaccine. The present disclosure also provides a method to train a machine-learning HLA-peptide presentation prediction model.

**Specification includes a Sequence Listing.**